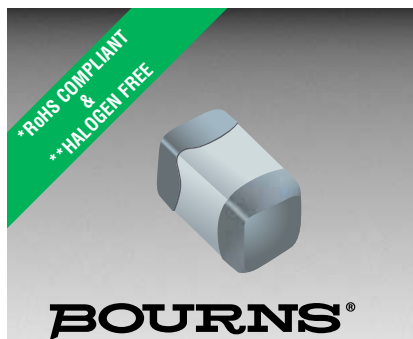




SinglFuse™ SF-0402S-M Series Features

- Single blow fuse for overcurrent protection
- 1005 (EIA 0402) miniature footprint
- Slow blow fuse (Fusing time ≤ 5 seconds at 250 % rated current)
- UL 248-14 compliant
- Surface mount packaging for automated assembly
- Multilayer SMD design
- RoHS compliant* and halogen free**

SF-0402S-M Series - Slow Blow Multilayer Surface Mount Fuses

Clearing Time Characteristics for Series

% of Current Rating	Clearing Time at 25 °C	
	Min.	Max.
100 %	4 hours	—
250 %	—	5 seconds
400 %	—	0.05 seconds

Additional Information

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Electrical Characteristics

Model	Rated Current (A)	Resistance (Ω) Typ.***	Rated Voltage	Interrupting Rating	Typical I^2t (A ² s)****	Certifications cUL: E198545
SF-0402S050M-2	0.50	0.378	24 VDC	35 A @ 24 VDC	0.0041	✓
SF-0402S075M-2	0.75	0.209			0.0071	✓
SF-0402S100M-2	1.00	0.119			0.0142	✓
SF-0402S150M-2	1.50	0.0557			0.051	✓
SF-0402S200M-2	2.00	0.0348			0.071	✓
SF-0402S300M-2	3.00	0.0209			0.111	✓
SF-0402S400M-2	4.00	0.0139			0.212	✓

*** Resistance value measured with ≤ 10 % rated current at 25 °C ambient. Tolerance ± 30 %.

****Melting I^2t calculated at 0.001 second pre-arcing time.

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**WARNING Cancer
and Reproductive Harm**
www.P65Warnings.ca.gov

*RoHS Directive 2015/863, Mar 31, 2015 and Annex.

**Bourns considers a product to be "halogen free" if (a) the Bromine (Br) content is 900 ppm or less; (b) the Chlorine (Cl) content is 900 ppm or less; and (c) the total Bromine (Br) and Chlorine (Cl) content is 1500 ppm or less.

"SinglFuse" is a trademark of Bourns, Inc.

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

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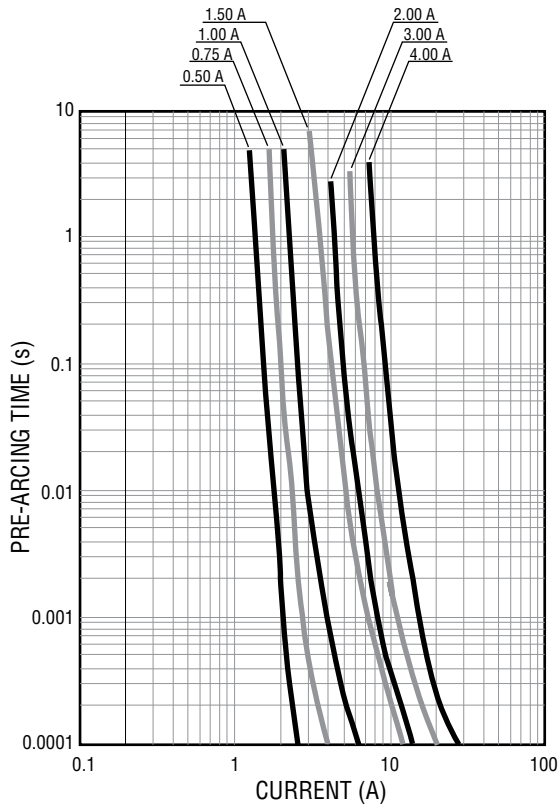
SinglFuse™ SF-0402S-M Series Applications

- Portable memory
- LCD monitors
- Disk drives
- PDAs
- Digital cameras
- MP3 players
- Cell phones
- Rechargeable battery packs
- Battery chargers
- Set-top boxes
- Industrial controllers
- Battery Management Systems (BMS)
- LED lighting
- Power tools

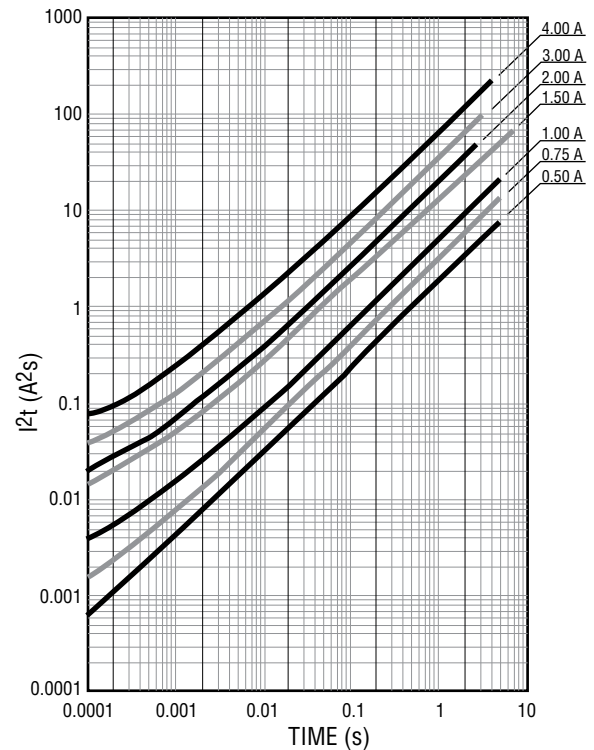
SF-0402S-M Series - Slow Blow Multilayer Surface Mount Fuses

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Average Pre-Arcing Time vs. Current Curves



Average I^2t vs. t Curves



Environmental Characteristics

Operating Temperature..... -55 °C to +125 °C
 Storage Conditions
 Temperature +5 °C to +35 °C
 Humidity..... 40 % to 75 %
 Shelf Life..... 2 years from manufacturing date
 Moisture Sensitivity Level 1
 ESD Classification (HBM)..... Class 6

Typical Part Marking

No part marking for this series

Packaging

Reel Dimension	7-inch Tape and Reel
Specification	EIA 481-2
Quantity	10,000 pieces
Packaging Code	-2

Specifications are subject to change without notice.

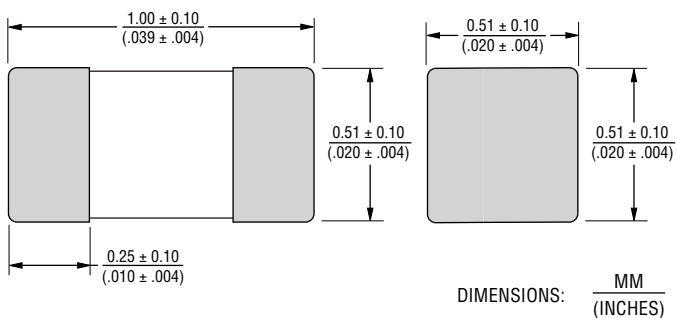
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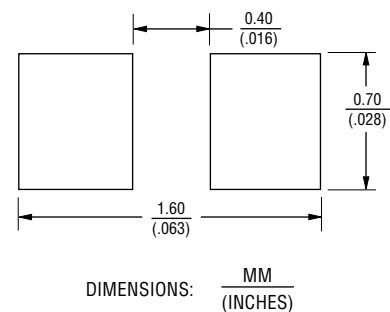
SF-0402S-M Series - Slow Blow Multilayer Surface Mount Fuses

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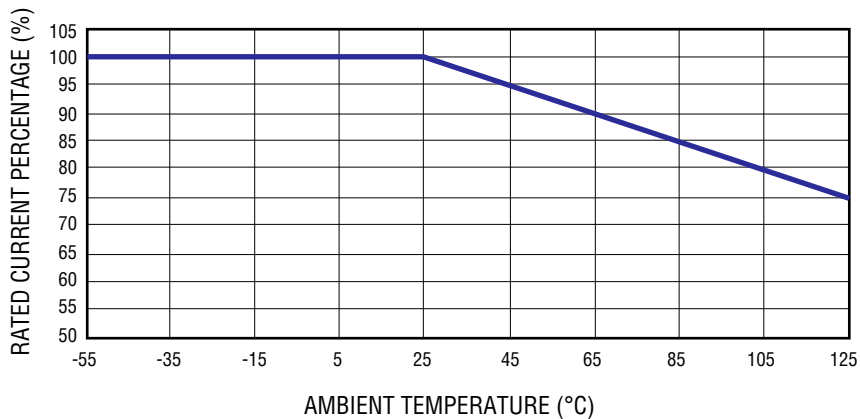
Product Dimensions



Recommended Pad Layout



Current Rating Thermal Derating Curve



How to Order

SF - 0402 S 050 M - 2

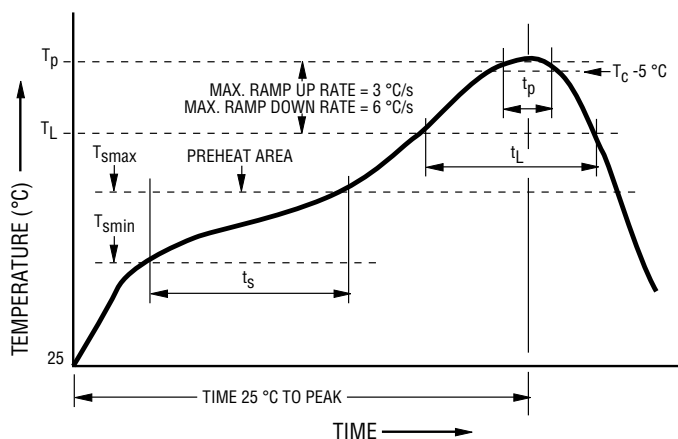
SinglFuse™ Product Designator	_____
SMD Footprint	_____
0402 = 1005 (EIA 0402) size	_____
Fuse Blow Type	_____
S = Slow blow	_____
Rated Current	_____
050 ~ 400 (0.50 A ~ 4.00 A)	_____
Structure Type	_____
M = Multilayer	_____
Packaging Type	_____
- 2 = Tape & Reel	_____

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Users should verify actual device performance in their specific applications.

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Solder Reflow Recommendations



Profile Feature	Pb-Free Assembly
Preheat / Soak:	
Temperature Min. (T_{smin})	150 °C
Temperature Max. (T_{smax})	200 °C
Time (t_s) from (T_{smin} to T_{smax})	60~120 seconds
Ramp Up Rate (T_L to T_p)	3 °C / second max.
Liquidous Temperature (T_L)	217 °C
Time (t_L) maintained above T_L	60~150 seconds
Peak Package Body Temperature (T_p)	260 °C
Time (t_p)* within 5 °C of the specified classification temperature (T_c)	30 seconds*
Ramp Down Rate (T_p to T_L)	6 °C / second max.
Time 25 °C to Peak Temperature	8 minutes max.

*Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.

Reliability Testing

No.	Test	Requirement	Test Condition	Test Reference
1	Soldering heat resistance	DCR change $\leq \pm 10\%$ No mechanical damage	One dip at 260 °C for 60 seconds	MIL-STD-202 Method 210
2	Solderability	Minimum 95 % coverage	One dip at 245 °C for 5 seconds	MIL-STD-202 Method 208
3	Thermal shock	DCR change $\leq \pm 10\%$ No mechanical damage	100 cycles between -65 °C and +125 °C	MIL-STD-202 Method 107
4	Moisture resistance	DCR change $\leq \pm 15\%$ No excessive corrosion	10 cycles	MIL-STD-202 Method 106
5	Salt spray	DCR change $\leq \pm 10\%$ No excessive corrosion	48 hour exposure, 5 % salt solution	MIL-STD-202 Method 101
6	Mechanical vibration	DCR change $\leq \pm 10\%$ No mechanical damage	0.4 inch D.A. or 30 G between 5-3000 Hz	MIL-STD-202 Method 204
7	Mechanical shock	DCR change $\leq \pm 10\%$ No mechanical damage	1500 G, 0.5 ms, half-sine shocks	MIL-STD-202 Method 213
8	Life	No electrical "opens" during testing. Voltage drop change shall be less than $\pm 20\%$ of initial value.	80 % rated current (75 % for ≤ 1 A fuses) for 2000 hours at ambient temperature +20 °C ~ +30 °C	Refer to STP document
9	Terminal strength	No mechanical damage	0.5 Kg pushing force	Refer to STP document

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